

I CLAIM:

1. A thermoelastic actuator assembly including :
a heating element including a heating layer bonded to a passive bend layer;
a heat conduction means positioned within said passive bend layer to conduct heat generated by the heating element away from said actuator assembly thereby facilitating the return of the actuator to a quiescent state subsequent to operation.
2. A thermoelastic actuator according to claim 1, wherein the heat conduction means comprises one or more layers of a metallic heat conductive material located within the passive bend layer.
3. A thermoelastic actuator according to claim 2, wherein the one or more layers of metallic heat conductive material is sufficient to prevent overheating of ink in contact with said actuator.
4. A thermoelastic actuator according to claim 2, wherein the one or more layers of metallic heat conductive material comprise a laminate of heat conductive material and passive bend layer substrate.
5. A thermoelastic actuator according to claim 4, wherein the one or more layers of metallic heat conductive material comprise Aluminium.
6. An ink jet printer including a thermoelastic actuator according to claim 2.
7. A method of producing a thermoelastic actuator assembly having desired operating characteristics including the steps of:
determining a desired negative pressure pulse characteristic for the actuator;
determining a heat dissipation profile corresponding to the desired negative pressure pulse characteristic; and
forming the thermoelastic actuator with a heat conduction means arranged to realize said profile.

8. A method according to claim 7, wherein the step of determining a desired negative pressure pulse characteristic includes a step of determining the physical qualities of a fluid to be used with the thermoelastic actuator.

9. A method according to claim 8, wherein the step of forming the thermoelastic actuator with a heat conduction means arranged to realize said profile includes forming one or more heat conductive layers in a passive bend layer of the actuator.